## Amendments to the Claims

The following listing of the claims will replace all prior versions and listings of claims in the application:

## Listing of Claims:

Claim 1 (currently amended): A purified nucleic acid construct comprising:

a gene cassette encoding ~~at least one~~ a modified protein selected from the group consisting of: a modified LuxA comprising an amino acid sequence in its carboxy terminus that specifically binds to a tail-specific protease, and

a modified LuxB comprising a PEST sequence in its carboxy terminus that specifically binds to a protein associated with a ubiquitin-proteasome pathway, ~~said modified protein comprising at least one modification in its amino acid sequence relative to the sequence of a wild-type form of said protein, wherein said modification comprises the addition of a peptide sequence to the protein, and~~

wherein the amino acid sequence that specifically binds to a tail-specific protease results in a reduced half-life of the modified LuxA protein when expressed in a bacterial cell ~~is shorter than~~ compared to the half-life of the wild-type form of the LuxA protein when expressed in the bacterial cell, and

wherein the PEST sequence results in a reduced half-life of the modified LuxB protein when expressed in a yeast cell compared to the half-life of the wild-type form of the LuxB protein when expressed in the yeast cell.

Claim 2 (currently amended): The purified nucleic acid construct of claim 1, wherein said gene cassette encodes both the modified LuxA and a modified LuxB[[,]] comprising the amino acid sequence in its carboxy terminus that specifically binds to the tail-specific protease, wherein the amino acid sequence that specifically binds to a tail-specific protease results in a reduced half-life of the modified LuxB protein when expressed in a bacterial cell compared to the half-life of the wild-type form of the LuxB protein when expressed in the bacterial cell ~~wherein the modified LuxA comprises at least one modification in its amino acid sequence relative to the sequence of a wild-type LuxA, and wherein the modified LuxB comprises at least one modification in its amino acid sequence relative to the sequence of a wild-type LuxB~~.

Claim 3 (previously presented): The purified nucleic acid construct of claim 1, wherein said gene cassette encodes all proteins necessary for production of bioluminescence without addition of an exogenous substrate.

Claim 4 (currently amended): The purified nucleic acid construct of claim 1 [[3]], wherein the gene cassette further encodes LuxC, LuxD, and LuxE.

Claim 5 (canceled).

Claim 6 (previously presented): The purified nucleic acid construct of claim 1, wherein the modified protein is derived from a bacteria selected from the group consisting of: *Photorhabdus luminescens*, *Vibrio fischeri* and *Vibrio harveyi*.

Claims 7 and 8 (canceled).

Claim 9 (currently amended): [[The]] A purified nucleic acid construct ~~of claim 8,~~ comprising a gene cassette encoding a modified LuxA comprising a carboxy-terminal sequence selected from the group consisting of SEQ ID NOS: 8, 9, and 10, wherein the half-life of the modified LuxA protein when expressed in an *E. coli* cell is shorter than the half-life of the wild-type form of the LuxA protein when expressed in the *E. coli* cell ~~peptide sequence comprises SEQ ID NO:8~~.

Claim 10 (currently amended): The purified nucleic acid construct of claim [[8]] 9, wherein the gene cassette further encodes a modified LuxB comprising the amino acid sequence in its carboxy terminal sequence that specifically binds to the tail-specific protease, and wherein the half-life of the modified LuxB protein when expressed in an *E. coli* cell is shorter than the half-life of the wild-type form of the protein when expressed in the *E. coli* cell ~~peptide sequence comprises SEQ ID NO:9~~.

Claim 11 (currently amended): The purified nucleic acid construct of claim [[8]] 9, wherein the modified LuxA and LuxB are derived from a bacteria selected from the group consisting of: *Photorhabdus luminescens, Vibrio fischeri* and *Vibrio harveyi* ~~comprises SEQ ID NO:10~~.

Claims 12-14 (canceled).

Claim 15 (currently amended): The purified nucleic acid construct of claim 1 [[7]], wherein the modified protein is the modified LuxB and said protein associated with a ~~proteolytic~~ ubiquitin-proteasome pathway mediates degradation of ~~said~~ the modified ~~protein~~ LuxB via a ubiquitin-proteasome pathway.

Claim 16 (previously presented): The purified nucleic acid construct of claim 15, wherein said protein associated with a ubiquitin-proteasome pathway is SCF(GRR1).

Claim 17 (canceled).

Claim 18 (currently amended): [[The]] A purified nucleic acid construct ~~of claim 17~~, comprising a modified LuxB comprising the ~~wherein said~~ PEST-rich 178 amino acid ~~sequence comprises a PEST-rich~~ carboxy terminal sequence of G1 cyclin Cln2,

wherein the half-life of the modified LuxB protein when expressed in a yeast cell is shorter than the half-life of the wild-type form of the LuxB protein when expressed in the yeast cell.

Claim 19 (previously presented): A vector comprising the purified nucleic acid construct of claim 1.

Claim 20 (previously presented): The vector of claim 19, wherein said vector is a plasmid.

Claim 21 (previously presented): The vector of claim 19, wherein said vector is an expression vector suitable for expressing a nucleic acid incorporated in the vector in a cell type selected from the group consisting of: a bacterial cell, a yeast cell and a mammalian cell.

Claim 22 (previously presented): A prokaryotic cell comprising the vector of claim 19.

Claim 23 (previously presented): The prokaryotic cell of claim 22, wherein said cell is a bacterial cell.

Claim 24 (canceled).

Claim 25 (previously presented): A eukaryotic cell comprising the vector of claim 19.

Claim 26 (previously presented): The eukaryotic cell of claim 25, wherein said cell is a yeast cell or a mammalian cell.

Claims 27-29 (canceled).

Claim 30 (new): The purified nucleic acid construct of claim 18, wherein said gene cassette further encodes LuxA.

Claim 31 (new): The purified nucleic acid construct of claim 30, wherein the modified LuxB protein and the LuxA protein are derived from a bacteria selected from the group consisting of: *Photorhabdus luminescens, Vibrio fischeri* and *Vibrio harveyi.*